

Overview of current trends in maritime transport in terms of transport sustainability

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Abstract. The goal of the paper is to analyse current trends in the area of maritime transport in the context of their importance while achieving global sustainability of international transport. The second aim is to compare the findings with needs and requirements of the practice, in order to constructively formulate recommendations in relation to further orientation of the research so that a synergic effect of the theory and the practice for the sake of achieving a sustainable development of the society in a long-term horizon occurs. From the methodology perspective, to fulfil such a defined goal, a bibliometric analysis of available secondary data included in the reputable scientific database of Web of Science was applied, which was realised using VOSviewer software platform. Following the results obtained, it can be stated that contrary to the needs of the practice, the issue of a special interest in delivery of a consignment is not paid any attention in the scientific literature; the ambition of the authors of this article is to remove the shortfall and to fill the identified gap in the scientific literature.

Keywords: *maritime transport; consignment delivery; transport sustainability; international carriage*

1. INTRODUCTION

Nowadays, cargo is transported from one place to another one in various ways, taking into account the conditions of the countries of origin and destination. The existence of transport contracts and relevant transport legislation is crucial. Legislators seek to organize relations between transport entities through applicable legislation. Transportation contract, among other things, determine the mutual rights and obligations of the contract parties, i.e., the sender of good and the transport operator. There is often a case of human failure during transport. This is the case, for example, when an operator responsible for the safe transport and delivery of cargo makes a mistake and the goods do not arrive at the place of delivery or are delivered damaged. There are certain rights and obligations associated with the

performance of transport. One of the rights of the sender of goods, that are expected to be observed by the transport operator, refers to loss and restitution of goods. This restitution includes all costs of the sender.

Transportation of goods are handled by the international transportation companies and organizations, with the bill of lading issued in all cases. International maritime companies owned by the government must develop the culture of cooperation and share the interests achieved via activity with their staff. Moreover, international transportation companies owned by government which have taken into economic emergencies, must be managed as the administrative arms based on the principle of cost and benefit [1].

There are inconsistencies in legal regulations for the issue of a special interest in delivery of a consignment, and even despite its practical relevance in the current scientific literature it has not been worked out comprehensively [2]. At the same time we may state that nor the question of particularities of legal regulations disharmony in international transport can be characterised with an appropriate meaning from the point of view of practical needs. The issue of the legal regulations variance itself is coincidentally ascertained even from several aspects: 1) a threat of special-purpose manipulation in context of a special-purpose suitable legislation; 2) the rigidity and absence of legal regulations for current issues; 3) a risk of bureaucracy and continual increase of the administrative severity of international transport; 4) a barrier to achieve goals of a global environmental policy.

According to DeSombre, the impact of globalization on international standards for environment, safety and labour, has reflected into the decisions of shipowners about the register their ships. Shipowners have moved registration of ships to low-standard states, while traditional national registries relaxed standards in an effort to keep ship registrations. As a result, recent successes in increasing standards have come from mechanisms of exclusion - ships that remain out of the international regulatory process are prevented from benefiting from their free riding by the imposition of trade restrictions, dockworker boycotts, and also by the inspection and detention processes [3].

In September 1959, the Nineteenth Conference of the International Maritime Committee (Comite Maritime International) was held in Rijeka. The Conference adopted a draft of a convention that aimed to address the issue of liability of the operators of nuclear ships (mainly in the terms of use nuclear reactors as a source of transportation both civil and military ships). The draft convention reflected the fact that liability issues arising from nuclear ships considerably differ from those issues, arising from the operation of land-based nuclear reactors. The draft of convention reflected the fact that issues of liability, arising from nuclear ships, considerably differ from those issues arising from the operation of land-based nuclear reactors. The Rijeka Draft became crucial for the later developments in the field of international nuclear law, in particular for the adoption of the Brussels Convention on the Liability of Nuclear Ships at the Eleventh Session of the Diplomatic Conference on Maritime Law in 1962. However, it also influences the content of another bilateral agreements.

The 60th anniversary of the Rijeka Draft represents significant opportunities - to revisit the principles provided by the draft convention, and to reconsider the impact of this draft on further development of international nuclear law [4]. According to Yang et al., the issue of safety and environmental pollution liability insurance (SEPLI) is crucial in this case, too [5]. This new insurance product - SEPLI - has been recently developed as an important supplement to the current safety and environmental risk prevention and control system. In comparison with other common insurances, SEPLI extends the function of insurance - from the simple compensation function to the "process management + compensation" function [6].

Addressing the inconsistencies in the regulation of international transport is dynamic and evident, especially in recent times. Moreover, Naevestad et al. have detected a considerable difference between the formal and informal aspects of safety by analysing a significant report of coastal freight sector [7]. The research of regulatory inconsistencies in international transport will focus primarily on regional specificities, thus waiving the global reach of the issue. One of the most important issues in transportation is the determination of the basis for determination of liability for each transportation body. In this regard, several theories have been proffered, such as the theory of fault, the theory of default in

guarding objects, theory of guarantee, the theory of damage and the theory of risk or liability. Based on a critical evaluation of these theories and analysis of relevant legal provisions, particularly in the French, UAE and Egyptian jurisdictions, this paper argues that the theory of damage, as a basis for liability, is the most applicable to contracts for the passenger transportation. Its content is clear, specific and consistent with the general rules of guarantee adopted in domestic laws such as the UAE Civil Transactions Law. Above all, it offers handicapped passengers the quickest access to justice and the opportunity to receive due compensation [8].

Although such an approach does often occur in the current scientific literature, it does not suit the particularities of the issue solved here [9].

In scope of the above mentioned, the following research questions have been set:

(1) What are the current trends in the scientific literature?

(2) Do the current trends in the scientific literature reflect real needs of the practice in the context of the issue of a special interest in delivery of a consignment?

2. DATA AND METHODS

The individual formulated research questions can be answered primarily with the implementation of the bibliometric analysis into available secondary data included in reputable scientific database of Web of Science. To realise such selected investigation methodology VOSviewer software platform has been selected. It is a freely available computing program, primarily designed for the analysis of bibliometric networks. This program is standardly used to create citation maps of publications, authors and citation networks. A citation network is a guided chart usually of a big scope; it shows how researchers publish their works, or how they cooperate, and it points out works of outstanding authors. Objects in the citation map are most frequently depicted as parts of the chart or the network. Citations networks can also be defined as a cluster of documents which is linked through relations among its elements. The workflow of a scientific mapping comprises the following steps: 1) data search; 2) data pre-processing; 3) extraction of the citation map; 4) data standardisation; 5) citation mapping; 6) data analysis, and 7) data visualisation. The following is true: the quality of results and the relevance of the following interpretation are directly proportional to the quality of the processed data.

This tool can be used to analyse records and to create clusters which are then visualised. The cluster analysis belongs to methods which deal with a similarity of multi-dimensional objects and a classification of these objects into clusters [10]. Generally, a cluster analysis can be defined as a general logical method formulated as a procedure; it is used to merge objects into groups - clusters, based on their similarity and difference [11]. The cluster analysis can also be used to radically decrease the dimension of a task; the variables under consideration are replaced with a single variable, expressing the affiliation to such a defined cluster [12]. A cluster is a group of objects whose distance (dissimilarity) is less than the distance between objects not belonging to the cluster. A similarity measure of objects x_i and x_j is noted as $S(x_i, x_j)$, or S_{ij} in its short form, and it is true that $S_{ij} = S_{ji}$. In an ideal case, similarity measures take values from an interval, where 0 means the maximum dissimilarity of objects, and 1 means the maximum identity. A dissimilarity measure of objects x_i and x_j is noted as $D(x_i, x_j)$, or D_{ij} in its short form, and the following is true: 1) $D_{ij} \geq 0$; 2) $D_{ii} = 0$; 3) $D_{ij} = D_{ji}$. [13,14] The similarity of objects can be measured with different methods which can usually be categorised into the following basic groups: 1) association measures; 2) distance measures (metrics); and 3) correlation measures, where coefficients of association and correlation represent measures of the objects' similarity, and the metrics represent measures of the objects' dissimilarity [15, 16].

The observed records can be represented with journals concentrating on the issue of maritime transport registered in reputable database of Web of Science. An overview of relevant journals listed in Web of Science is summarised in Table 1 below.

Tab. 1

Overview of relevant journals listed in Web of Science

Journal Title	JCR Category	Quartile in Category	Impact Factor	Publication Years	Papers Totally
Journal of Maritime Law and Commerce	International Relations Law	Q4 Q4	0.244 (2010)	1974-2011	1,427
Maritime Economics & Logistics	Transportation	Q3	1.703 (2019)	2009-2020	333
Maritime Policy & Management	Transportation	Q2	3.152 (2019)	2009-2020	657
Polish Maritime Research	Engineering, Marine	Q3	1.263 (2019)	2007-2020	945

Not all journals occurring in Web of Science database can be included into the analysis of trends in the studied field. Journal of Maritime Law and Commerce is excluded because it has been inactive in the database since 2011 which is in conflict with the research objective to identify the actual trends. Likewise, Polish Maritime Research journal is excluded due to its orientation towards technical connections of the issue. With regard to the facts above the following Web of Science database journals come into consideration: Maritime Economics & Logistics, and Maritime Policy & Management; they focus on transport and they imply economic-managerial aspects of maritime transport.

3. RESULTS AND DISCUSSION

The realised bibliometric analysis detected five basic trends in maritime transport which are graphically represented in Figure 1.

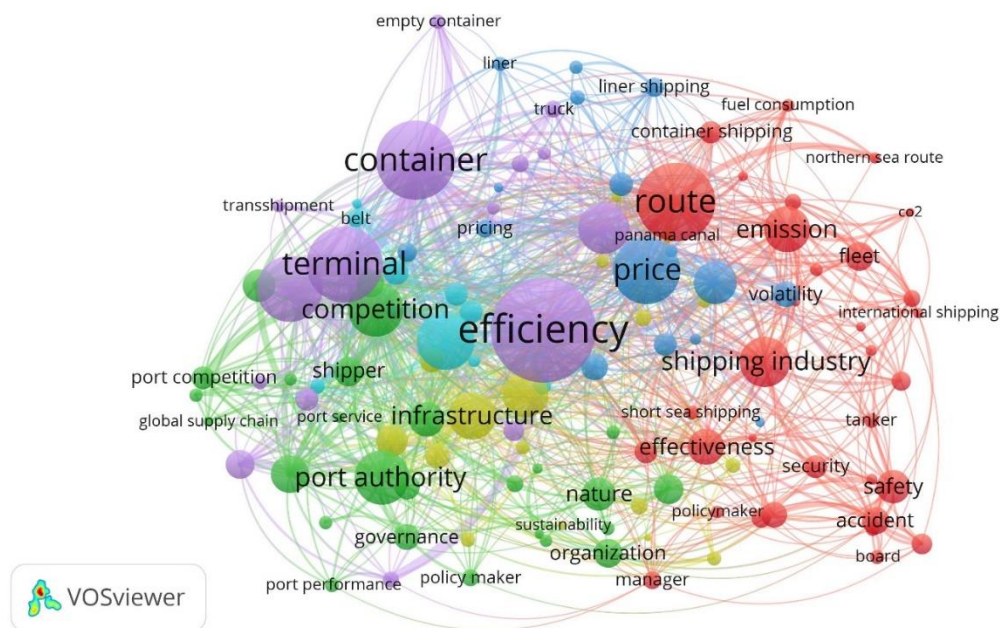


Fig. 1. A bibliometric map identifying clusters of trends in maritime transport

The bibliometric map implies that there are the following current trends in the scientific literature in the field of maritime transport [17]:

- 1) logistic optimisation (represented in purple colour);
- 2) economic efficiency (represented in blue colour);
- 3) ecologic severity (represented in red colour);
- 4) legislative-organisational security (represented in green colour), and
- 5) regional particularities (represented in yellow colour).

An interesting fact is that the issues of economic efficiency and ecologic severity are mutually related. A similar situation occurs in case of legislative-organisational security and regional particularities. The issue of logistic optimisation forms a relatively autonomous cluster without any apparent relations to the other identified ones. The information mentioned above implies that the issue of legal regulations is one of the current trends in the study of international transport, but when compared to other identified trends it is a relatively incoherent cluster which de facto comprises categories not classified into the other ones. Thus, it can be stated that contrary to the needs of the practice the issue of a special interest in delivery of a consignment is not paid any attention in the scientific literature; the ambition of the composite author of this article is to remove the shortfall and to fill the identified gap in the scientific literature [18,19].

A significant number of international conventions on carriage of goods requires that the agreements between a shipper and a carrier on a special shipper's interest in delivery of the consignment in case of loss, damage or exceeding the delivery time shall be made in writing, entered into the consignment note and that the carrier is paid a surcharge against the freightage (usually prior to the carriage). The entry into the consignment note on accepting the agreement on a special interest in delivery of the consignment functions as a caution not only for the carrier but also for other subjects participating in the carriage and coming into contact with the consignment. If applicable regulations (international conventions) require the acceptance of the agreement on a particular interest in delivery to be entered into the consignment note then the agreement between the shipper and the carrier mentioned for example in the contract of carriage or e-mail communication shall be considered inadequate, thus invalid. Furthermore, there is much discussion about the question if the surcharge against the freightage must be paid unconditionally, or if only the consent to its amount is sufficient [20].

Also in this case, it may be stated that the failure to pay the surcharge for a special interest in delivery of the consignment can be considered as a non-fulfilment of the fundamental prerequisite of the agreement, and such a breach does not allow for the shipper to demand a higher compensation from the carrier. The agreement which would mean an unreasonably low surcharge against the freightage in relation to possible consequences could also be considered invalid. However, it cannot be ruled out for the surcharge to be included in an increased freightage [21].

As a result of agreeing on a special interest in delivery there will not be applied any value limits set in individual conventions on carriage of goods, but the carrier will be obliged to compensate the shipper for the damage up to the negotiated amount of the interest in delivery, usually declared in the consignment note (as already mentioned above). If damage of the consignment occasions or the delivery time is exceeded, it does not automatically mean that the carrier is liable to pay the amount negotiated as the (maximum) special interest in delivery of the consignment. In this case the shipper will have to declare that the actual damage has arisen due to the consignment's carriage and the carrier will be obliged to compensate it up to the maximum amount of the interest agreed upon. Some international conventions, however, allow that the carrier themselves must prove that the claim made by the shipper is higher than their actual interest in delivery of the consignment, and thus they have impacted the amount of their compensation duty. For completeness' sake it must be stressed that insurance companies do not usually cover either the carrier's risk in relation to the agreement on a special interest in delivery of the consignment, or the related value agreements on the price of the consignment. Therefore the fulfilment of the risk resulting from the carriage of goods, and the agreement on a special interest in delivery of the consignment will present a direct intervention into the carrier's financial stability.

4. CONCLUSIONS

The goal of the paper was to analyse the current trends in the area of maritime transport in the context of their importance while achieving global sustainability of international transport, and comparing the found state to needs and requirements of the practice, in order to constructively formulate recommendations in the area of a further orientation of the research so there occurs a synergic effect of the theory and the practice for the sake of achieving a sustainable development of the society in a long-term horizon. Through the identification of trends while utilising the bibliometric analysis it was found out that the issue of legal regulations is one of the current trends in the study of international transport, but when compared to other identified trends it is a relatively incoherent cluster which de facto comprises categories not classified into the other ones.

Thus, it can be stated that contrary to the needs of the practice the issue of a special interest in delivery of a consignment is not paid any attention in the scientific literature; the ambition of the composite author of this article is to remove the shortfall and to fill the identified gap in the scientific literature. The most significant source of complications in the carriage of goods at international level is the fact that relationships which emerge, exceed the territory of a single state in its meaning, and contain an element in connection with another state. It is the existence of this "international element" which moves the carriage of goods from domestic system of law to the sphere of international law.

The necessity to coordinate, integrate and unify principles regulating international carriage is not a new issue, and in spite of significant differences in original sources of private law regulating the carriage in countries of a continental and Anglo-American system of law the unification process at international level in the area of carriage may be considered a success.

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